

Appl. No. 09/872,052  
Amtd. Dated May 23, 2005  
Reply to Office Action of February 23, 2005

Attorney Docket No. 1810A-045 (81841.0192)  
Customer No.: 26021

**REMARKS/ARGUMENTS:**

Claims 55-71 are pending in the application. Reexamination and reconsideration of the application, in view of the following remarks, are respectfully requested.

**CLAIM REJECTIONS UNDER 35 U.S.C. §102:**

Claims 55-61 and 63-71 stand rejected under 35 U.S.C. §102(e) as being anticipated by Obremski et al. (U.S. Patent No. 6,110,749). The Applicant respectfully traverses this rejection.

Claim 55 is as follows:

A device comprising a plurality of unmodified biopolymer and a solid support, wherein the solid support has at least one surface comprising pendant acyl fluoride functionalities, and wherein an unmodified end of the biopolymer is attached to the solid support by reaction with the pendant acyl fluoride functionalities, in the absence of a spacer arm.

Applicant respectfully submits that Obremski cannot anticipate claim 55, because Obremski fails to teach a "device comprising a plurality of unmodified biopolymer ... wherein an unmodified end of the biopolymer is attached to the solid support by reaction with the pendant acyl fluoride functionalities, in the absence of a spacer arm."

In the Applicant's response to the Office Action dated September 14, 2004, a Declaration under 37 C.F.R. § 1.132 from inventor Robert S. Matson was submitted. In that Declaration, Robert S. Matson states that he provided Obremski with the oligonucleotides that were covalently coupled to the waveguide using acyl fluoride coupling (Obremski, column 16, line 65-column 17, line 1). In his Declaration,

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Matson confirms that those oligonucleotides were amino-modified. In addition, Matson also confirms that unmodified small oligonucleotides were found to be inefficiently immobilized to most solid supports relative to amino-modified oligonucleotides.

The Examiner in response to the Declaration states,

"However, the declaration does not provide any actual evidence that the oligonucleotides that were used by Obremski in the '749 invention were unmodified. Examiner suggests a signed affidavit from Obremski that the oligonucleotides that were used were unmodified."

The Applicant respectfully disagrees with the Examiner's assertion that the inventor's declaration is not actual evidence. The Declaration under 37 C.F.R. 1.132 was made under penalty of perjury and provides evidence that the oligonucleotides used by Obremski were modified. The Applicant respectfully submits that the inventor's Declaration that he provided his colleague Obremski with the modified oligonucleotides that were used in Obremski's experiments constitutes actual evidence.

MPEP 716.01(d) states,

"In making a final determination of patentability, evidence supporting patentability must be weighed against evidence supporting *prima facie* case. ... The ultimate determination of patentability must be based on consideration of the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992)."

The Applicant respectfully submits that the inventor's Declaration stating that he provided Obremski with the modified oligonucleotides that were used in

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Obremski's experiments, the Applicant's arguments (repeated below in part, for the Examiner's convenience), and Obremski's lack of experimental detail, as to the nature of the oligonucleotides used, create a case where the preponderance of the evidence indicates that the present invention is patentable over the prior art.

Prior to the present invention, it was generally understood in the art that the attachment of biopolymers via available terminal amino groups may lead to inefficient and unstable attachment or to reduced activity of the attached biomolecule. Since biopolymers contact supports in a random orientation, the terminal attachment of biopolymers may suffer from low stability and efficiency.

Because of the possible low attachment efficiency and reduction in biomolecule activity of terminal attachments via naturally present amino groups, this methodology has been abandoned years ago in favor of using post-modified or derivatized biomolecules. In view of the state of the art discussed above, prior to the present invention, one skilled in the art could not have predicted with certainty that biopolymers could be efficiently immobilized directly on substrates without modification and without the use of linkers. This invention unexpectedly demonstrates that such attachment is possible.

In addition, the Applicant respectfully submits that Obremski's lack of experimental detail, as to the nature of the oligonucleotides, does not establish that the oligonucleotides were inherently unmodified.

MPEP 2112(IV) states,

"The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of

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conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). 'To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) ... 'In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.' *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)"

The Applicant respectfully submits that the extrinsic evidence, discussed above, does not make clear that the missing descriptive matter is necessarily present in Obremski, and that it would be so recognized by persons of ordinary skill.

Furthermore, the Applicant respectfully submits that the Examiner has not specifically explained why the evidence presented by the Applicant is insufficient to overcome the rejection.

MPEP 716.01 states,

"Where the evidence is insufficient to overcome the rejection, the examiner must specifically explain why the evidence is insufficient. General statements such as 'the declaration lacks technical validity' or

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'the evidence is not commensurate with the scope of the claims' without an explanation supporting such findings are insufficient."

Therefore, the Applicant respectfully submits that without a specific explanation as to why the evidence is presented is insufficient, the rejection over Obremski should be withdrawn.

In summary, Obremski fails to teach or suggest using unmodified biopolymer; the Examiner has presented no prior art wherein the biopolymer is unmodified; the Applicant has presented evidence that Obremski did not use unmodified biopolymer; and the Examiner has failed to provide a specific explanation as to why the evidence presented is insufficient.

In light of the foregoing, Applicant respectfully submits that Obremski could not have anticipated or rendered obvious claim 55, because Obremski fails to teach or suggest each and every claim limitation. Claims 56-61 and 63-71 depend from claim 55 and cannot be anticipated or rendered obvious for at least the same reasons as claim 55. Withdrawal of these rejections is thus respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. §103:

Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Obremski et al., 6,110,749 in view of Lindall, 5,470,307.

Claim 62 depends from claim 55 and therefore, cannot be rendered obvious over Obremski for at least the same reasons discussed above. Lindall cannot remedy the defect of Obremski and is not relied upon by the Examiner for such. Instead, the Examiner cites Lindall for teaching a polymer support that is made of carboxyl-modified polypropylene and has proteins or nucleotides coupled to it. Lindall fails to teach or suggest using acyl fluoride groups for any of the couplings.

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In light of the foregoing, Applicant respectfully submits that the cited references could not have made claim 62 obvious, because the combination of references fails to teach or suggest each and every claim limitation. Withdrawal of this rejection is thus respectfully requested.

Claims 55-71 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Barany et al., 6,852,487 in view of Matson, 6,037,124. The Applicant respectfully traverses this rejection.

Applicant respectfully submits that under 35 U.S.C. §103(c), Matson does not preclude the patentability of the present invention because Matson is owned by the assignee of the present invention, Beckman Coulter, Inc. 35 U.S.C. § 103(c) states that:

"Subject matter developed by another person, which qualifies as prior art only under one more subsections of (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time of the invention was made, owned by the same person or subject to an obligation of assignment to the same person."

The Matson patent issued March 14, 2000 upon an Application filed September 27, 1996. The Matson patent was assigned to Beckman Coulter, Inc. at the time the present invention was made. The assignment is recorded with the U.S. Patent and Trademark Office at 009731/0001. The instant Application was filed on May 31, 2001 and is a divisional of Application Serial No. 09/312,095 which was filed on May 12, 1999. The instant Application is also assigned to Beckman Coulter,

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Inc. The assignment is recorded with the U.S. Patent and Trademark Office at 010101/0671.

Based on the foregoing, Applicants believe that Matson can only be prior art under 102(e), 102(f) or 102(g). Pursuant to MPEP 706.02(l)(2), Applicant believes that Matson does not preclude the patentability of the present invention. Applicant files concurrently herewith a statement concerning common ownership. Withdrawal of this rejection is thus respectfully requested.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, in view of the foregoing remarks, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,  
HOGAN & HARTSON L.L.P.

Date: May 23, 2005

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